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10/578,223	01/04/2007	Susumu Yamaguchi	4600-0121PUS1	8401

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EXAMINER

MUKHOPADHYAY, BHASKAR

ART UNIT	PAPER NUMBER
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1789

NOTIFICATION DATE	DELIVERY MODE
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08/31/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/578,223	Applicant(s) YAMAGUCHI ET AL.	
	Examiner BHASKAR MUKHOPADHYAY	Art Unit 1789	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 14-17 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 14-17 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Applicants' amendment filed 6/3/2011 overcomes the rejections of record, however, the new grounds of rejection as set forth below are necessitated by applicants' amendment and therefore the following action is **final**.
2. Claims 1-13 cancelled. Claims 14-17 are pending in this action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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- a. Determining the scope and contents of the prior art.
- b. Ascertaining the differences between the prior art and the claims at issue.
- c. Resolving the level of ordinary skill in the pertinent art.
- d. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 14, 15, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haynes, USPN 5169669 in view of evidence prior art by NPL "Vegetable oil FA composition and in view of Gilbertson, USPN 6166076 .

6. Regarding claims 14, 15, Haynes et al. disclose heating cooking oil containing e.g. 99.9% canola oil (col 5, lines 15-20; and claim 5) which is vegetable cooking oil wherein the oil is refined, bleached and deodorized (col 5 lines 30-35) in order to avoid offensive order during cooking (Abstract) in order to make the oil appropriate for use as frying oil (col 5 line 50). There is no explicit disclosure in Haynes et al. of method of cooking foods as claimed. However, although there is no explicit disclosure of cooking foods, given that Haynes et al. disclose cooking oils for frying and heating the oil to frying temperature, it would have been obvious to one of ordinary skill in the art to fry food with the oil and fat in order to produce cooked and fried product.

Haynes et al., however, do not teach about (a) fat and amount of PUFA in the cooking oil and (b) 'enhancing body taste of foods'.

With respect to (a), although there is no specific disclosure in Haynes et al. of unsaturated fatty acid as claimed, it is well known, as evidenced by NPL Vegetable oil that canola oils comprises fats (i.e. palmitic C16:0) and 8-22% linolenic acid (equivalent

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to e.g. 8%= 80000 ppm) which overlaps the claimed range of 10-100000 ppm to meet claim 14.

With respect to (b), although there is no explicit disclosure in Haynes et al. of enhancing body taste of foods, on the one hand, it is well known as evidenced by Gilbertson that linolenic acid which has 18 carbon atoms (n-6) and 3 double bonds (Abstract; Table 1) has the characteristics of taste stimuli through taste receptor cells and therefore increases the taste receptor cells sensitivity to other stimuli (Abstract) and thus, the method of Haynes would intrinsically enhance the body taste of food.

Alternatively, Gilbertson teaches about a method for making various foods with cis polyunsaturated fatty acids (col 2 lines 55-60, e.g. in lines 57-58, 'addition of these fatty acids to foods', known as PUFAs (col 7, line 43, e.g. cis poly unsaturated fatty acids or PUFAs) in order to stimulate taste receptors in the mouth (col 9, lines 10-15). Gilbertson also teaches about fatty acids exhibiting these properties are those having 20 or more carbon atoms for n-3 or 18 or more carbon atoms for n-6 and having 3 or more double bonds, and polyunsaturated fatty acids including arachidonic acid, eicosapentaenoic acid, and docosahexaenoic acid (Abstract; Table 1) and the time for taste receptor cells to return to the "resting" state is longer following fatty acid stimulation than for other taste stimuli and so increases the taste receptor cells sensitivity to other stimuli (Abstract), thus meeting the claimed element "enhancing body taste of foods". The motivation is to make the food more palatable with the stimulation of taste buds and enhancement of taste (Abstract).

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It would have been obvious to one of ordinary skill in the art at the time of invention to include the teaching of NPL Vegetable oil in Gilbertson into Haynes. One of ordinary skill in the art would have been motivated to make the food with the specified PUFA as claimed in order to make food more palatable with the stimulation of taste buds and enhancement of taste (Abstract).

7. Regarding claims 16, 17 Haynes et al. disclose heating cooking oil containing e.g. 99.9% canola oil (col 5, lines 15-20; and claim 5) which is vegetable cooking oil wherein the oil is refined, bleached and deodorized (col 5 lines 30-35) in order to avoid offensive order during cooking (Abstract) in order to make the oil appropriate for use as frying oil (col 5 line 50). There is no explicit disclosure in Haynes et al. of method of cooking foods as claimed. However, although there is no explicit disclosure of cooking foods, given that Haynes et al. disclose cooking oils for frying and heating the oil to frying temperature, it would have been obvious to one of ordinary skill in the art to fry food with the oil and fat in order to produce cooked and fried product.

Haynes also teaches that (a) “no significant effects were observed for FFA chain length or bond position (e.g. n-3 which is alpha linolenic vs. n-6 which is gamma),

(b) canola oil meet the claimed range of **linolenic acid as evidenced by NPL Vegetable oil that canola oils comprises fats (i.e. palmitic C16:0) and 8-22% linolenic acid (equivalent to e.g. 8%= 80000 ppm) which overlaps the claimed range of 10-100000 ppm to meet claim 14. However, taste enhancement is**

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contributed both by linolenic and linoleic acids and linoleic acid present in canola oil.

(c) Additionally, Haynes has mentioned other combinations e.g. sunflower seed oil, soybean oil, canola oil, or other polyunsaturated oil (col 3 lines 20-28, col 2 lines 34-35). Therefore, one of ordinary skill in the art can use the respective mixtures to incorporate desired PUFA in the composition.

Haynes et al., however, do not teach about (a) fat and amount of PUFA in the cooking oil and (b) additionally addition of 10-100,000 ppm n-3 or n-6 PUFA for 'enhancing body taste of foods' as claimed in claim 17.

With respect to (a), although there is no specific disclosure in Haynes et al. of unsaturated fatty acid as claimed, it is well known, as evidenced by NPL Vegetable oil that canola oils comprises fats (i.e. palmitic C16:0) and 8-22% linolenic acid (equivalent to e.g. 8%= 80000 ppm) which overlaps the claimed range of 10-100000 ppm to meet claim 14.

With respect to (b), although there is no explicit disclosure in Haynes et al. of enhancing body taste of foods, on the one hand, it is well known as evidenced by Gilbertson that linolenic acid has 3 double bonds (Abstract; Table 1) has the characteristics of taste stimuli through taste receptor cells and no significant effects were observed for FFA chain length or bond position (e.g. n-3 which is alpha linolenic vs. n-6 which is gamma) (col 7 lines 54-55), and therefore increases the taste receptor cells sensitivity to other stimuli (Abstract) and thus, the method of Haynes would intrinsically enhance the 'body taste of food'. Taste enhancement

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is contributed both by linolenic and linoleic acids and linoleic acid is present 15-25% in canola oil. Claim limitation does not restrict to exclude n-3 as the claim uses transitional phrase "comprising".

Gilbertson teaches about a method for making various foods with cis polyunsaturated fatty acids (col 2 lines 55-60, e.g. in lines 57-58, 'addition of these fatty acids to foods', known as PUFAs (col 7, line 43, e.g. cis poly unsaturated fatty acids or PUFAs) in order to stimulate taste receptors in the mouth (col 9, lines 10-15). Gilbertson also teaches about fatty acids exhibiting these properties are those having 20 or more carbon atoms for n-3 or 18 or more carbon atoms for n-6 and having 3 or more double bonds, and polyunsaturated fatty acids including arachidonic acid, eicosapentaenoic acid, and docosahexaenoic acid (Abstract; Table 1) and the time for taste receptor cells to return to the "resting" state is longer following fatty acid stimulation than for other taste stimuli and so increases the taste receptor cells sensitivity to other stimuli (Abstract), thus meeting the claimed element "enhancing body taste of foods". One of ordinary skill in the art, therefore, flexible to include PUFA in the food, e.g. oil and then heat cooking the food (e.g. oil) to mask the off flavor i.e. 'enhancing body taste of the food (i.e., oil) as taught by Haynes (col 4, lines 30-31, e.g. 180-220 degree C) as claimed in claim 16 or preparing oil mixture with the desired claimed ranges of PUFA and then heat-cooking the foods to incorporate PUFA responsible for "body taste enhancement" as claimed in claim 16. Regarding claim 17, foods are heat cooked with the vegetable oils as taught by Haynes. 100 μ M of the desired

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taste enhancing PUFA can be added (Gilbertson, col 10, lines 51-54, claim 3) to meet claim 17 (b). According to the following calculation, 100 μ M meets the claimed ranges between 10-100,000 PUFA.

Calculation: Mw of linoleic acid is 280.45, linolenic acid is 278.3 and archidonic acid is 304.47.

Let us consider Mol wt. 280. 100 μ M is 0.028g/L i.e. 28 ppm which is within the claimed ranges of 10-100,000. Likewise, for arachidonic acid it is 30.4 ppm.

The motivation is to make the food more palatable with the stimulation of taste buds and enhancement of taste (Abstract).

It would have been obvious to one of ordinary skill in the art at the time of invention to include the teaching of NPL Vegetable oil and Gilbertson into Haynes. One of ordinary skill in the art would have been motivated to make the food with the specified PUFA as claimed in order to make food more palatable with the stimulation of taste buds and enhancement of taste (Abstract).

Response to Argument

8. Applicants' argue on pages 4-5, 1st paragraph in page 5 that canola oil has an alpha linolenic acid but not gamma linolenic acid. It is agreed, however, Gilbertson teaches that

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(a) "no significant effects were observed for FFA chain length or bond position (e.g. n-3 which is alpha linolenic vs. n-6 which is gamma) (Gilbertson et al., col 7 lines 54-55),

(b) canola oil meet the claimed range of linolenic acid as evidenced by NPL Vegetable oil that canola oils comprises fats (i.e. palmitic C16:0) and 8-22% linolenic acid (equivalent to e.g. 8%= 80000 ppm) which overlaps the claimed range of 10-100000 ppm to meet claim 14. However, canola oil contains linoleic acid also for taste enhancement as taught by Gilbertson. It is well understood that the transitional phrase "comprising" can include the composition with other PUFA including n-3 or n-6 10-100000 ppm. Therefore the contribution of linoleic and linolenic acids in canola provides the function of taste enhancement and also meet the claimed limitation of 10-100000 ppm n-3 or n-6 with 3 or more double bonds.

Claim limitation does not restrict to only 3 or more double bond containing PUFA as the transitional phrase "comprising".

(c) Additionally, Haynes has mentioned other combinations e.g. sunflower seed oil, soybean oil, canola oil, or other polyunsaturated oil (col 3 lines 20-28, col 2 lines 34-35). Therefore, one of ordinary skill in the art can use the respective mixtures to incorporate desired PUFA in the composition.

(d) Interestingly, Haynes in combination with Gilbertson provides two additive functions. Haynes teaches masking the off flavor which makes the oil (oil by definition is a food) superior and when used as the source of Cis-PUFA to add in food, it enhances the taste by stimulating taste receptor cells.

9. Applicants argue on page 5 paragraphs 2 that “Haynes does not speak of adding any particular fatty acid but Gilbertson speaks of adding fatty acids to food”. This is important for addressing the new claims 16 and 17 also and it is, therefore, flexible to one of ordinary skill in the art to include PUFA in the food either through oil containing the desired PUFA or only desired Cis-PUFA or the combination. Gilbertson does not exclude the addition of Cis PUFA through oil.

10. Applicants argue on page 5 last paragraph that “odor smell reversion flavor derived from oxidized decomposition of the fatty acid”. However, in specification, page 6, lines 35-37 it states that “there is no limitation on an origin of the long-chain fatty acid” and in page 7, line 23 states that “highly unsaturated fatty acid may be added as such”. It is, therefore, more relevant to use Haynes because Haynes overcomes the tendency to produce offensive odor when heated to frying temperature (Abstract and in particular cols 3 and 4).

11. Regarding claim 16, according to the claim limitations, cooking oil can be considered as food. Haynes in combination with Gilbertson provides two additive functions. Haynes teaches masking the off flavor which makes the oil (oil by definition is a food) superior, therefore, enhance ‘body taste’ of food (i.e. oil) and when used as the source of Cis-PUFA to add in food, it enhances the taste by stimulating taste receptor

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cells. Haynes in combination with Gilbertson also allows adding oil with PUFA and/or desired amount of free cis-PUFA to food (Gilbertson et al., col 3 lines 39-40) also.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

13. A shortened statutory period for reply to this non-final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Bhaskar Mukhopadhyay whose telephone number is (571) - 270- 1139.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Humera Sheikh can be reached on (571)-272- 0604. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B.M. /
Patent Examiner, Art Unit 1789

/Humera N. Sheikh/
Supervisory Patent Examiner, Art Unit 1789